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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/736,661
Filing Date: December 14, 2000
Appellant(s): RODRIGUEZ ET AL.

____
David Rodack
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/18/10 appealing from the Office action mailed 3/09/10.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 38, 53-55, 71-78, 80-82, and 85-89.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(**5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(**8) Evidence Relied Upon**

6,570,579 B1	MacInnis et al	05-2003
5,614,952	Boyce et al	03-1997
5,953,506	Kalra et al	09-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 38, 53-55, 71-78, 80-82, and 85 -89 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacInnis et al (6,570,579 B1) in view of Boyce et al (5,614,952) and Kalra et al (5,953,506).

Regarding claim 38, MacInnis et al discloses a method for adapting to resource constraints of the DHCT (abs.; Fig. 1), comprising:

determining by the DHCT (set-top box)(abs.), whether one of a resource constrained mode or a non-resource restraint mode is to be initiated, the DHCT capable of operating in the non-resource constraint mode (does not have real time constraints) and a resource constraint mode (specific bandwidth requirement mode);

responsive to determining that one of the resource constrained mode is to be initiated, *operating* the DHCT in the determined resource- constrained mode (col. 55, lines 17-35)(col. 54, lines 36-48; col. 55, lines 8-17);

retrieving a set of reconstructed decompressed (decoded) video frames (Fig. 2, 50) from a first portion of a memory component, wherein the set of video frames

corresponds to a video picture stored in the first portion (Fig. 2, Memory; col. 5, lines 5-18); and

transferring the set of retrieved reconstructed decompressed (decoded) video frames (Fig. 2, 50) to a display device (abs.; television display; Fig. 2, Video Out) and downscaling (52; col. 5, lines 65-67; col. 6, lines 1-9) the video picture.

MacInnis et al does not seem to particularly disclose transferring the set of retrieved reconstructed decompressed video frames to a display device ***while*** *downscaling the video picture in transit to the display device*, operating in ***a plurality*** of resource constraint ***modes***, and determining whether ***one*** of the resource constrained ***modes*** is to be initiated, and responsive to determining that ***one*** of the resource constrained ***modes*** is to be initiated, *operating* the DHCT in the determined resource-constrained mode.

MacInnis et al also does not seem to particularly disclose the memory component storing compressed video data in a distinct second portion.

However, Kalra et al teaches a scalable media delivery system, comprising operating in ***a plurality*** of resource constraint ***modes***, and determining whether ***one*** of the resources constrained ***modes*** is to be initiated, and responsive to determining that ***one*** of the resource constrained ***modes*** is to be initiated, ***operating*** the determined resource- constrained mode (col. 17, lines 10-67; col. 18, lines 1-24) for reproducing video frames with a resolution that is optimized to the capabilities of the client computer (col. 1, lines 66-67; col. 2, lines 1-3).

Furthermore, Boyce et al teaches digital video decoder comprising retrieving a set of reconstructed decompressed (decoded) video data from a first portion (Fig. 1, 118) of a memory component (114), wherein the memory component stores compressed video data in a distinct second portion (116), wherein the set of video data corresponds to a video picture (col. 4, lines 64-67; col. 5, lines 1-4; col. 10, lines 44-50) for efficiently managing the memory resources such as size or the bandwidth (col. 10, lines 1-4).

Moreover, Boyce et al teaches transferring the set of retrieved reconstructed decompressed (decoded) video data (from Fig. 4, 402 and 403) to a display device (TO

DISPLAY) ***while*** downscaling (Reduced Resolution) the video picture in transit to the display device for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders (Fig. 4, col. 17, lines 66-67; col. 18, lines 12-38; col. 2, lines 37-40).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing a method for adapting to resource constraints of the DHCT as taught by MacInnis et al to incorporate all of the teachings as taught by Kalra et al and Boyce et al so as to transfer the set of retrieved reconstructed decompressed video frames to a display device while downscaling the video picture in transit to the display device for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders, and to operate in a plurality of resource constraint modes and determine whether resource constrained modes is to be initiated, and responsive to determining that one of the resource constrained modes is to be initiated, *operating* the DHCT in the determined resource- constrained mode for reproducing video images with a resolution that is optimized to the capabilities of the client computer, and also incorporate the memory component storing compressed video data in a distinct second portion for efficiently managing the memory resources such as size or the bandwidth.

Regarding claims 53-54 and 89, MacInnis et al discloses a DHCT and a method for adapting to resource constraints of the DHCT (abs.; Fig. 1) comprising:

a processor (22);

determining by the DHCT (set-top box)(abs.), whether a resource constrained mode is to be initiated, the DHCT capable of operating in the non-resource constraint mode (does not have real time constraints) and a resource constraint mode (specific bandwidth requirement mode);

responsive to determining that one of the resource constrained mode is to be initiated, initiating the resource constraint mode (col. 55, lines 17-35)(col. 54, lines 36-48; col. 55, lines 8-17);

retrieving from a first portion of a memory component (Fig. 1, VIDEO IN), a set of compressed pictures (Fig. 2, Video In entering Video Decoder);

storing in a second memory component (Fig. 2, Memory ;Fig. 1, element 28; col. 3, lines 1-3) a set of decoded pictures (from 50) corresponding to the set of compressed pictures, each of the set of decoded pictures being at a first spatial resolution (Fig. 3, 52; col. 3, lines 1-3);

retrieving from the second memory component the set of reconstructed decoded pictures/frames (Fig. 2, 50; col. 3, lines 1-3); and

transferring the set of retrieved decoded video pictures/frames (Fig. 2, 50) to a display device (abs.; television display; Fig. 2, Video Out), and scaling (52; col. 5, lines 65-67; col. 6, lines 1-9) the video pictures/frames.

MacInnis et al does not seem to particularly disclose operating in ***a plurality*** of resource constrained modes, and determining whether ***one*** of the resource constrained modes is to be initiated, and responsive to determining that ***one*** of the resource constrained modes is to be initiated, initiating the resource constraint mode, and transferring a set of retrieved decoded pictures to a display device ***while*** *scaling the video picture in transit to the display device to a second spatial resolution* ***without*** *storing pictures in a memory component*, wherein the second spatial resolution is smaller than the first spatial resolution.

MacInnis et al also does not seem to particularly disclose the memory component storing and retrieving a set of decoded pictures in a distinct second portion.

However, Kalra et al teaches a scalable media delivery system, comprising operating in ***a plurality*** of resource constraint modes, and determining whether ***one*** of the resources constrained modes is to be initiated, and responsive to determining that **one** of the resource constrained mode is to be initiated, initiating the resource constraint mode (col. 17, lines 10-67; col. 18, lines 1-24) for reproducing video images with a resolution that is optimized to the capabilities of the client computer (col. 1, lines 66-67; col. 2, lines 1-3).

Furthermore, Boyce et al teaches digital video decoder comprising retrieving a set of compressed pictures/frames from a first portion (Fig. 1, 116) of a memory component (114), wherein the memory component stores decoded video pictures/frames in a distinct second portion (116) of the memory component, wherein

the set of video frames corresponding to video pictures/frames (col. 4, lines 64-67; col. 5, lines 1-4; col. 10, lines 44-50), and transferring a set of retrieved decoded pictures/frames (Fig. 4, 402, 403) to a display device (To Display) ***while*** scaling video pictures/frames in transit to the display device to a second spatial (reduced) resolution ***without*** storing pictures in a memory component, wherein the second spatial resolution is smaller than the first spatial resolution (from 401 or 402) for efficiently managing the memory resources such as size or the bandwidth (col. 10, lines 1-4) and implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders (col. 17, lines 66-67; col. 18, lines 12-38; col. 2, lines 37-40).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing the DHCT and the method for adapting to resource constraints of the DHCT as taught by MacInnis et al to incorporate all of the teachings as taught by Kalra et al and Boyce et al so as to transfer the set of retrieved reconstructed decompressed video frames to a display device while downscaling video frames in transit to the display device to a second spatial resolution without storing pictures in a memory component, wherein the second spatial resolution is smaller than the first spatial resolution for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders, and to operate in a plurality of resource constraint modes and determine whether one of the resource constrained modes is to be initiated, and responsive to determining that one of the resource constrained modes is to be initiated, initiating the resource constraint mode in the DHCT for reproducing video images with a resolution that is optimized to the capabilities of the client computer, and also incorporate the memory component storing compressed video data in a distinct second portion for efficiently managing the memory resources such as size or the bandwidth.

Regarding claim 55, MacInnis et al discloses a method for adapting to resource constraints of the DHCT (abs.; Fig. 1), comprising:

operating the DHCT (set-top box)(abs.) in either a non-resource constraint mode (does not have real time constraints) and a resource constraint mode (specific bandwidth requirement mode), the DHCT capable of operating in the non-resource

constraint mode (does not have real time constraints) and the resource constraint mode (specific bandwidth requirement mode)(col. 54, lines 36-48; col. 55, lines 8-35);

receiving, in a memory component (Fig. 1, VIDEO IN), video frames each comprising a complete picture;

retrieving the video frames from the memory component (Fig. 1,10); and

transferring the retrieved video frames (Fig. 2, 50) to a display device (abs.; television display (Fig. 2, Video Out), and downscaling the received video frames in transit to the display device (52; col. 5, lines 5-67; col. 6, lines 1-9)

MacInnis et al does not seem to particularly disclose operating in a plurality of resource constrained modes, and determining whether one of the resource constrained modes is to be initiated, and <u>responsive to determining that one of the resource constrained modes is to be initiated, initiating the resource constraint mode</u>, and <u>transferring the set of retrieved reconstructed decompressed video data to a display device **_while_** _downscaling the video picture in transit to the display device_</u>.

However, Kalra et al teaches a scalable media delivery system, comprising operating in a plurality of resource constraint modes, and determining whether one of a resource constrained modes is to be initiated, and <u>responsive to determining that one of the resource constrained modes is to be initiated, initiating the resource constraint mode</u> (col. 17, lines 10-55) for reproducing video images with a resolution that is optimized to the capabilities of the client computer (col. 1, lines 66-67; col. 2, lines 1-3).

Furthermore, Boyce et al teaches transferring the set of retrieved reconstructed decompressed (decoded) video frames (from Fig. 4, 402 and 403) to a display device (TO DISPLAY) **_while_** downscaling (Reduced Resolution) the video picture in transit to the display device for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders (Fig. 4, col. 17, lines 66-67; col. 18, lines 1-16; col. 2, lines 37-40).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing a computer readable medium containing a program for use in the DHCT and a method for adapting to resource constraints of the DHCT as taught by MacInnis et al to incorporate all of the teachings as taught by Kalra et al and Boyce et al

so as to operate in a plurality of resource constrained modes, and to determine whether one of the resource constrained modes is to be initiated, and responsive to determining that one of the resource constrained modes is to be initiated, initiating the resource constraint mode for reproducing video images with a resolution that is optimized to the capabilities of the client computer, and to transfer the set of retrieved reconstructed decompressed video frames to a display device while downscaling the video frames in transit to the display device for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders.

Regarding claims 74, 78, and 82, MacInnis et al discloses transmitting graphics data to the display device (Fig. 2, 50; abs.; television display; Fig. 2, Video Out).

Furthermore, Boyce et al teaches graphics data (Fig. 4, 401) being displayed contemporaneously with the scaled video data (402, 403) for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders (col. 2, lines 37-40).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art employing a DHCT for adapting to resource constraints of the DHCT as taught by MacInnis et al to incorporate all of the teaching as taught by Boyce et al for implementing picture-in-picture capabilities in a digital TV without incurring the cost of multiple full resolution decoders.

Regarding claim 71, MacInnis et al discloses transmitting graphics data to the display device (Fig. 2, 50; abs.; television display; Fig. 2, Video Out), and Boyce et al teaches graphics data (Fig. 4, 401) being displayed contemporaneously with the scaled video data (402, 403).

Regarding claims 72-73, 75-77, and 80-81, MacInnis et al discloses horizontal and vertical downscaling (col. 44, lines 14-21).

Regarding claims 85-88, MacInnis et al discloses a memory constrained mode (col. 55, lines 17-35) and Kalra et al teaches a bus-bandwidth constrained mode (col. 17, lines 10-24).

Therefore, it would have been considered obvious to a person of ordinary skill in the relevant art to recognize that the above constrained modes could very well be

combined to represent a memory and bus-bandwidth constrained mode to accommodate both memory and bus-bandwidth constrained modes as a whole.

(10) Response to Argument

Appellant's arguments as filed on 10/18/10 in the appeal brief have been fully considered but they are not persuasive.

The Appellant presents arguments contending the Examiner's rejections of:

Claims 38, 53-55, 71-78, 80-82, and 85 -89 being rejected under 35 U.S.C. 103(a) as being unpatentable over MacInnis et al (6,570,579 B1) in view of Boyce et al (5,614,952) and Kalra et al (5,953,506).

However, after careful consideration of the arguments presented, the Examiner must respectively disagree for the reasons that follow and submit to the board that the rejection be sustained.

The Appellant presents arguments that cited prior art references fail to disclose or describe:

i) claims 38, 53-55, and 89, of which the recited "***downscaling***" occurs ***after*** the ***decompressed picture*** buffer (Appellants: pages 12, 21, 30, 38, and 48).

However, after careful scrutiny of the cited prior art references, the Examiner must respectively disagree, and maintain the grounds of rejection for the reasons that follow.

In response to argument i), actually the only claimed limitation in claims 38, 53-55, and 89 that relates to the "downscaling" recites "***transferring*** the set of retrieved

reconstructed ***decoded/decompressed video frames*** to a display device while ***downscaling/scaling*** the video picture/frame(s) in transit to the display device.”.

In that aspect, Macinnis et al discloses a video decoder (Fig. 2, 50) to the video scaler (Fig. 2, 52), wherein the video scaler may perform both downscaling and upscaling of digital video and analog video as needed, and with analog and digital video input, either one may be scaled while other is displayed full size (col. 5, lines 65-66; col. 6, lines 1-9), wherein the analog video signal (as illustrated on Fig. 2) is used as an input signal to the video decoder (50) for an obvious decoding/decompression of the analog video signal, and subsequently transfer to the video scaler (52) for downscaling and/or upscaling of video frames, which is substantially the same/similar design as Applicant’s decoder (Fig. 4, 81) to the video scaler (83).

Therefore, Macinnis et al clearly discloses downscaling occurring after the decompressed video frames/pictures as discussed above.

Furthermore, Boyce et al clearly teaches/illustrates ***downscaling (126)*** *occurring* ***after*** the ***decoded/decompressed picture*** buffer (202), wherein decoding is performed by IDCT (inverse discrete cosine transform) processing (124) and IQ (inverse quantization) processing (122).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(12) Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/SHAWN AN/

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